Title: Sponsored Network Games

Technical Field:

The invention pertains to supplying games to gamers over communication networks that are either hard-wired, cellular, mobile, satellite or combinations thereof. Advertising is inserted into the game content as a revenue source. The advertising is tailored to the specific gamer.

DEFINITIONS:

EDGE	Enhanced Data Rates for GSM Evolution
ETSI	European Telecommunications Standardization Institute
GSG	Game Sponsoring Gateway
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HSCSD	High Speed Circuit Switched Data
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LAN	Local Area Network
SMS	Short Message Service
TDMA	Time Division Multiple Access
UMTS	Universal Mobile Telecommunications System
WAP	Wireless Application Protocol
WCDMA	Wideband Code Division Multiple Access

1

BACKGROUND OF THE INVENTION:

Multi-user games are being played over communications networks, including the Internet. Typically, a server supports each game. Game sessions are typically long in duration but the amount of data transferred between the game server and the gamer terminal during a session is limited.

Games could be distributed over a mobile communications network including a mobile packet data network. Using mobile communications networks to support game distribution is more costly then using hard-wired landlines due to connection costs. The costs could be a barrier to the distribution of games over a mobile network.

There are many games supplied over the Internet. They include **game-land.com, hotgames.com,** Future Games Network, Moraff Games, **Yahoo** Games, **Candystand.com,** Pop Rocket, and **BingoMania** ™ to name a few. Generic advertising is displayed to the game user when signing onto the game site.

OBJECTS OF THE INVENTION:

An object of the invention is to provide advertising to a gamer at selected intervals.

Another object of the invention is to provide advertising to a gamer directed to him based on his demographic, geographic, preference or customized user database.

Yet another object of the invention is to allow the network operator, including mobile networks, to provide advertising in the data stream of games at selected intervals.

SUMMARY OF THE INVENTION:

A Game sponsoring Gateway (GSG) is a communication hub to route game requests to a Game Server and responds by supplying the requested game. Along with the game is supplied selected advertising. Criteria for selection are reference to the geographic location of the gamer for geographic sensitive ads. Another set of criteria is the gamers' preferences and profile as determined by reference to a database. Advertisement selection and display is determined by user preferences or appropriate breaks in gaming.

BRIEF DESCRIPTION OF THE DRAWINGS:

Figure 1 is a graphical representation of the Nokia GGSN connection to the GPRS Network.

Figure 2 is a graphical representation of proposed 3rd Generation mobile network.

Figure 3 is a graphical representation of the Game Sponsoring Architecture.

DETAILED DESCRIPTION OF THE INVENTION:

Wireless data usage is doubling every year in advanced markets. Many cellular operators already earn over 5% of their revenues from data traffic. In addition to income from traditional service subscription and usage, wireless data brings new ways to generate revenue. These new revenue sources include content provisioning, value-added services, Internet access and services, advertising and vertical services for specific market segments. Successful operators will be the innovators and market makers for these new applications.

GPRS Functionality:

3

~~General Packet Radio Service (GPRS) is the best platform for mobile data~~ networking services. GPRS is also an essential stepping-stone to third generation personal multimedia services. But for mobile operators and service providers, GPRS revolutionizes business and working practices, a trend that is both driven and reinforced by the convergence of telecommunications and data networking. GPRS opens up new opportunities, but also introduces challenges, the most significant of which are changes in the tariff model and introduction to the new IP infrastructure. Nokia's complete GPRS solution features both comprehensive charging facilities as well as best-in-class GPRS core ~~IP network.~~

With the Internet and GSM coming ever closer together, people will want personalized wireless data services, creating an opportunity to generate new business by meeting these demands.

Traditionally, GSM operators have offered value-added services by providing mobile access to existing telecommunication services. With GPRS, mobile operators have a superb IP delivery vehicle that enables them to re-evaluate and transform their role in the value chain, not only by preserve existing business but to grow revenue.

~~Comprehensive end-to-end solutions will require new partnerships with solution~~ and content providers. Nokia is in the forefront of WAP development and a leading wireless datacom supplier, and is already helping to bring operators together with content ~~providers, and 3rd party software developers.~~

~~AN example of a commercial embodiment of the GPRS system is a mobile user~~ that is a salesman gets an e-mail reminder for a customer meeting. He double-checks the ~~customer profile from the company database by typing its name into his Communicator.~~

~~He does need to not place a call, as he is constantly logged on to his LAN because his~~ terminal is equipped with GPRS. The Communicator connects to the corporate intranet via the mobile operator's GPRS network. Quickly, the salesman briefs himself with the customer's order history, personnel profiles, current stock, product history and price level. All this is transmitted via short bursts of data. Customer queries can be answered immediately, enabling real-time, interactive sales and marketing. When the meeting ~~concludes, the salesman types a short report and submits it with the click of a button.~~

~~GPRS brings true packet data connectivity to the GSM market, paving the way for~~ the next generation of Personal Multimedia services. GPRS integrates GSM and Internet Protocol (IP) technologies, adding convenience and immediacy to mobile data services. With peak data rates of over 100 kbit/s, GPRS offers instant packet-switched data connections to data networks, such as the Internet, Internet Service Providers (ISPs) and ~~corporate intranets. And all delivered via GSM technology~~.

GPRS is a superb bearer for different types of wireless data applications with bursty data, especially WAP based information retrieval and database access. GPRS will bring cost effective packet data connectivity to the mobile mass market. Session set-up is nearly instantaneous, while higher bit rates enable convenient personal and business applications. Consequently, GPRS not only makes wireless applications more usable, but also opens up a variety of new applications in personal messaging and wireless corporate intranet access.

~~GPRS packet-switched data technology makes efficient use of radio and network resources and is a key stepping stone to the third generation. Nokia's complete solution~~

~~for creating and implementing GPRS data services include IP core and radio network infrastructure, as well as integrated GPRS service and billing solutions.~~

~~To upgrade an existing GSM radio network for GPRS, the Nokia solution includes~~ new software that can be remotely downloaded to Nokia Base Stations, so no site visits ~~are needed~~.

~~In addition, Nokia's GPRS solution includes new stand-alone network elements:~~ the Nokia Serving GPRS Support Node (SGSN), ~~the Nokia~~ Gateway GPRS Support ~~Node (GGSN) as shown in Figure 1 and the Nokia Charging Gateway.~~

~~For operators, GPRS brings opportunities to capture more corporate business.~~ With Nokia's GPRS solution, the corporate intranet ~~can be~~ securely connected directly to the operator's GPRS network. ~~Nokia~~ GPRS has the highest security solution on the ~~market for complete data protection.~~

~~Nokia has designed an end-to-end GPRS system that provides a future-proof evolution path to EDGE and third generation technologies.~~

~~The Nokia GGSN connects the GPRS network to the Internet, Internet Service~~ Providers (ISPs) and corporate intranets, allowing simultaneous multiple secure data access points. The Nokia GGSN architecture is based on Nokia's IP routing platform, offering such advanced features as integrated firewall functionality for excellent data ~~security.~~

~~The Nokia SGSN is a network element that converts protocols between the IP~~ core and the radio network, as well as serving such functions as mobility management, ~~user verification and collection of billing data. Based on the proven Nokia DX 200~~

a telecommunication switching platform, this new product is designed with built-in redundancy for excellent system reliability and scalability.

Unique to Nokia's solution is the stand-alone Nokia Charging Gateway, which provides a single access point from the GPRS network to the operator's billing system. Charging information generated by the SGSN and GGSN is relayed to this system, which then consolidates and pre-processes the data records to reduce billing system processing for uninterrupted service.

In September 1998, the first call using a Third Generation Nokia terminal was made on a test network in Japan. Testing continues and has reached an important milestone on its road to Third Generation mobile telephony. It is expected that by 2001, the first commercial Third Generation mobile network will be launched, and the world will be introduced to digital mobile multimedia communications.

Full-scale Personal Multimedia services set very demanding requirements for the core network of 3rd generation mobile systems. GSM, as the most modern digital system in the market, is the best platform choice.

Future networks will be based on the GSM core network including future GPRS packet data functionality. The ATM-interfaced WCDMA radio access will be connected to the GSM/GPRS core network. Also EDGE will be fully based on an evolution of the GSM system.

From the user point of view, all current GSM services will be provided in 3rd generation. Provisions that allow users to seamlessly use their services when roaming from a 2nd generation network to a 3rd generation network will be needed. In addition to that, full-scale multimedia services like imaging and video-on-demand will be enabled. The

enhanced data services help the operator to maintain a superior service offering as demand develops.

The GSM network sub-system will evolve in phases of flexible upgrades of existing GSM MSCs towards a 3rd generation core network. The phased approach minimizes infrastructure investments and allows seamless service in GSM and WCDMA coverage areas.

In the first phase, a 2nd generation GSM MSC and GPRS system will operate the WCDMA radio network through inter-working functionality. For packet services, the GPRS structure will be upgraded to accommodate much larger data throughputs. At this stage the end user will see higher packet data rates and radio transmission capacity. Within 3rd generation the data speeds will match or exceed PSTN modem data connections. Customers will enjoy current GSM data services and enhancements such as HSCSD, GPRS and EDGE, and further benefit from true Personal Multimedia via the new 3rd generation WCDMA radio interface. A parallel evolution of services will ensure a rich availability of applications.

In the second phase, ATM functionality will be added to the GSM MSC. This will enable fast broadband ATM-switching of personal multimedia content towards other networks such as ATM, IP, PSTN/N-ISDN.

The core network internal architecture is distributed and thus will provide modularity in increasing the capacity flexibly. Only the necessary elements are added as capacity needs grow.

8

On the application level, boundaries between telecom and data communications, between mobile and fixed, and between private and public networks are becoming increasingly transparent.

~~This development is most apparent in the office environment. The mobile handset~~ is already often the preferred phone for voice calls. Improving QoS capabilities of IP may soon enable the use of IP as an alternative transport for voice connections. On the other hand the H.323 standard supports combined transport of voice, video and data streams ~~belonging to the same communication session.~~

For mobile voice and live video, circuit switching will remain for a longer time the mainstream technology. Service and network integration will drive packet switched applications in networks where QoS can be relied on.

With 3rd generation these trends become more apparent, necessitating ATM transport to carry both circuit mode and IP packet mode traffic with guaranteed QoS. Firstly, GPRS will support mobile connections to IP networks, forming a seamless gateway towards integration with the Internet. The applications can be such as intra/Internet packet access at various data rates or IP conferencing including voice over IP networks.

Secondly, mobile and fixed switches can be equipped with IP gateways to intra/extranet. The IP network's transmission capacity can thus be used to carry inter-exchange voice traffic in a compressed form, supporting IP telephony. GPRS and switch gateways together will allow seamless integration of mobile and IP networks.

~~GSM is the most common Second Generation mobile telephony standard. GSM is used throughout most of the world for mobile, digital telecommunications. If you use a~~

9

a ~~mobile phone today, the chances are that~~ you are using GSM technology. It is found *a* ~~throughout Europe, Asia, in North and South America, in short, almost everywhere you~~ *a* ~~go~~

GSM is the only standard that fully specifies the complete network architecture, not just the radio access or air interface. This has promoted the creation of a multi-vendor, competitive market environment and unmatched services to the end users. Because of its many strengths, GSM has been chosen as one of the standards from which Third Generation mobile telecommunications will evolve. In fact, the key element in the progression to third generation is GSM's network capability rather than any new or enhanced air interface.

Future networks will be based on the GSM core network evolved with GPRS packet data functionality. This evolved GSM will work in conjunction with WCDMA radio access to give undreamed of Personal Multimedia on the move.

~~Mobile phones are no longer just phones you carry with you. They will have~~ screens on which you can compose electronic multimedia postcards, send and receive text messages and visual messages, even cartoons. Increases in data transmission speeds, higher processing capacity and other technological advances will give you enhanced audio and colorful visual images. You will be able to receive not just still pictures, but video clips sent by friends, family, colleagues, clients and anyone who wants to create a visual ~~message.~~

~~You will be able to compose multimedia messages yourself. Bluetooth technology will make it easy for you to use a digital video recorder or camera and send the pictures or~~

10

video to anyone else who has a 3rd generation terminal. You will be able to create your own multimedia message and send it wherever you want?

The key to this coming boom in wireless data is the Wireless Application Protocol (WAP). The first truly open standard for intelligent messaging services for digital mobile phones and other mobile terminals, WAP will remove the barrier of proprietary solutions, accelerating the pace at which new and exciting services can be launched.

Working with application developers, operators will be able to develop innovative services that will attract new users, who will benefit from a wider choice of mobile applications, advanced services and Internet access.

Multimedia Terminal for Digital Cable Services

The cable version of the Nokia Mediamaster is identical to its satellite brother, with one exception, the front-end uses another demodulation technique, called QAM (Quadrature Phase Modulation) which is the standard set by the Digital Video Broadcasting (DVB) group. This transmission technique is optimal for cable TV use, where the bandwidth is limited compared to satellite transmissions.

The Nokia Mediamaster 9500 C enables CATV homes to get access to all of the digital TV and radio programmes as well as the interactive services offered by the programme providers. A CD-ROM player as well as other computer peripherals can be connected to the data communication ports.

The Nokia Mediamaster 9500 C can handle 16.- 256 QAM signals within a 2-10 MHz bandwidth transmitted via the standardised UHF band to fit any CATV distribution network.

~~There is a built-in telephone modem designed for V22bis fax or V32bis protocols.~~
This connection is used as the return channel for interactive services. Using the elegantly designed Electronic Programme Guide (EPG) the user can navigate throughout the services. So that with a home shopping channel, the user can select goods or items of his or her choice and then order them by pushing the buttons on the remote control. Signals are then sent via the telephone modem to the service provider who takes care of the order ~~and delivers the appropriate products or services.~~

~~The same scenario can be used for Pay-Per-View services. If the user decides to~~ watch a sporting event, for example, they can confirm the service ordered by simply pressing the buttons on the Nokia hand-set and the programme is made available automatically. Downloading of new software is easily done, offering upgrading and new ~~services to the end user as they become available~~.

The application system resources are comprehensive with a RAM memory of 1 Mbyte (2 Mbytes extension) and a Flash memory of 1, 1.5 or 2 Mbytes depending on the version of the Mediamaster 9500 C.

Deliveries of this box began in March '97 for the German speaking market, where the Kirch group is operating the DF-1 programme bouquet.

Third Generation

~~Shown in Figure 2 is the third generation of mobile communications that will~~ combine a number of technologies. These technologies will work together seamlessly to give you a high level of multi-media, personal and mobile communication. The ~~technologies supporting this advance are WAP, Bluetooth and Symbian described below.~~

WAP

The Wireless Application Protocol (http://www.wapforum.org) (WAP) will standardize access to Internet content from mobile phones. WAP provides a link between the Internet and mobile telephony and will accelerate the growth of the market for wireless content services. WAP is compatible with all major cellular systems. In GSM, WAP has many transport options including SMS, GSM data at 9.6 kbit/second, HSCSD and GPRS.

Bluetooth

Bluetooth is a new technology for wireless connectivity. It will allow wireless communications between mobile phones, laptops and other portable devices. Being a radio-based link, Bluetooth doesn't require a line-of-sight connection in order to establish communication.

~~Nokia is a founding member of the Bluetooth Special Interest Group (SIG), an~~ industry group consisting of leaders in the telecommunications and computing industries that are driving development of the technology and bringing it to market. Today, there are nearly 700 companies who have joined the consortium. More information about Bluetooth ~~is available at www.bluetooth.com.~~

Symbian

Symbian (http://www.symbian.com) is a joint venture set up to develop and promote an operating wireless information device called EPOC. This scalable operating system will allow customizable user interfaces, color support, advanced Internet connectivity and accredited connectivity software.

Sponsored Games

The systems above described are an embodiment that also supports the delivery of sponsored games over a mobile network. Other mobile networks will support sponsored games as will hardwire landlines and combinations of the networks.

Existing Games supplied over the internet display advertising generically. One such game provider, **candystand.com,** has the functionality of a gamer initiated advertisement break. The sponsor of this web site is the candy maker **Lifesavers** ™. After the gamer has logged onto the site a home page flashes pre-selected advertising. The home page has a link to a list of candies and games from which the gamer may further select. The user clicks on the logo to see advertising messages for the sponsor's candy products. Viewing advertising is initiated by the gamer.

In one embodiment of the present invention one service supplies games and a second tailors and supplies the advertising to the gamer (user). The advertising presentation is dynamic. The advertising can be inserted into predefined placeholders for advertisements in the game screen and also be added to the borders of the screen on which the game is being viewed.

One method of dynamically displaying advertising is to stop the game for a moment and display the commercial. After the commercial the game is restored. The game sequence may be tagged to identify the most convenient break points, or logical transitions, in which to present the advertising. In a war game environment, a logical game break could be between missions but not in the heat of action.

Referring to Figure 3, a game supporting architecture is depicted. The assembled components for this novel system are known in the art. Game Sponsoring Gateway (GSG).

~~2 responds to a request for a game from Game Client terminal 4. The request is~~ communicated over a GPRS Network 6 or other supporting communication network such as existing mobile communications networks including GSM networks. The GSG 2 communicates with a game server 8 to provide a game- to- game client 4 delivered over a ~~GPRS network 6~~

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~~The GSG 2 also communicates with additional servers to organize advertisements~~ for presentation to the game client terminal 4. A location server 10 is contacted that provides information on the user of the game client terminal 4 current address. The GSG 2 also communicates with a sponsor Content Server 12 to provide advertisements to be included in the data stream from the game server 8 to the game client terminal 4. The GSG 2 communicates with user data server 14 to access information on the user's preferences and profile. The information can include how much advertisements the user accepts, subject matter of interest to the user, purchase history, demographic profile, income level, credit history, online purchase history, web site access history, and like markers of purchasing conduct. There are existing consumer preference models for advertising including those modeled on point of sale databases to tailor advertising including coupons. The location server 10, sponsor content server 12 and user data server 14 are existing ~~independent systems~~

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~~As previously stated, when a user accesses a game over this system his initial~~ connection from his terminal 4 is via a GPRS system for mobile communications to the GSG 2. The GSG 2 either identifies the user by using authentication mechanisms on the underlying network or by using some other means such as an application level login with a ~~password to the GSG. The GSG then checks the user data server 14 to determine if the~~

15

~~user will accept advertisements attached to the selected game. If the answer is affirmative~~ then the GSG 2 retrieves the user's profile from the user data server 14. The profile is accessed to select the appropriate advertisement based on the user profile, demographics, etc. The GSG 2 accesses the location server 10 to get the current geographic location of ~~the user for further use in selecting advertising~~.

The GSG 2 is supplied advertising by the game sponsors by accessing sponsor content server 12. The information indicates the content of the advertisement and whether it is geographically dependent in appropriate circumstances and like criteria for usage of the advertisement. The GSG 2 uses the criteria supplied by user data server 14 and location server 10 as to what advertising to present to the game user over his terminal 4.

When the GSG 2 receives the game data from the game server 8, it scans the data for advertisement placeholders. The GSG 2 inserts selected advertisements into the placeholders according to the user's profile, preferences and current geographic location as appropriate.

The game environment may contain predefined placeholders to which the GSG 2 may attach the advertisements. This enables advertisements inside the game scenery that are tailored to the user of the game. For instance while playing a Formula 1 racing game, there may be personalized advertisements placed on the inside of the race track. Also personalized ads may be placed in other physical places in the game such as in a dungeon of a game like Doom.

The game environment may have predefined placeholders, e.g., a place for graphical advertisement of any size such as 200 x 100 pixels.

The GSG 2 detects the placeholder and replaces that with an advertisement personalized for the user of the game.

The game sheet could be distributed in a traditional way (e.g., using CD-ROM). The client may contain additional intelligence as part of the network gaming functionality. The additional functionality may be able to communicate with the GSG 2 while the game if played in the network modes. Thus, the game client may fetch advertisements from the GSG 2 and insert them in the appropriate places in the game.

While this method and system for supplying sponsored advertising has been described as delivered over particular mobile communication networks, GPRS and GSM, any mobile communication network or any communication network will support this application. This description of the invention is illustrative and not exclusive of the means of implementing it.